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THE ANTICIPATORY ASPECT OF CONSCIOUSNESS

IN studying the psychological categories which are concerned with the content of consciousness we are quite prone to emphasize their retrospective aspect under such captions as memory and association and to refer the anticipatory aspect of consciousness to the conative categories. In the following paragraphs I shall attempt to indicate the possible fruitfulness of considering more prominently the anticipatory aspect of the cognitive categories.

The reflex arc constitutes a serviceable mode of representation for the simplest types of coordination, but we drop it as soon as we begin to talk about the higher cognitive categories except for such recondite references to it as in the law of ideomotor action. If we consider consciousness as in its essence a process of selecting an adaptive response it becomes a function which mediates the causal relationship between the stimulus and the adaptive response. It must of course be admitted that while following this mode of attack we are primarily concerned with what consciousness *does*, to the partial exclusion of that other question as to what consciousness *is* to the actor. In the simplest type of coordination, the reflex, we have a response, usually adaptive, which is characterized by the absence of any conscious mediating factor between the stimulus and the response. We may for convenience designate as circuits the more complex arcs which embody conscious stages.

That the response may serve either as a new stimulus or as a modifier of the stimulus is well recognized. But we may legitimately separate out the passage of causal relationship from the stimulus to the response and designate it psychologically as an act. The term act as so used refers, then, not to the final overt motor expression, nor to the immediate attitudinal antecedents of the overt response, but to the whole circuit by which the stimulus becomes defined into the response.

The law of dynamogenesis may be stated in connection with the reflex circuit by saying that the function of the circuit is an irreversible process since it always takes place in one direction and never in the reverse direction. To be sure, a complex cortical circuit which

is shunted with a reflex arc, may modify the latter and give the illusion of reversibility, but the circuit as well as its parts function irreversibly.

It is a commonplace to assert that consciousness appears only when it is necessary to select one out of several courses of action, and that as long as there is only a single coordination possible the adaptive response is to that extent unconscious. This fact may be restated in terms of the reflex circuit by saying that if the coordination between the stimulus and the response is adequately provided for by the structure of the nervous system we have an unconscious bond between the two ends of the arc. Now let the stimulus be reacted to by either one of two possible responses. These responses are not disparate throughout their course. They are identical in the sensorium, but issue in the motorium as distinct. Now, there must be some stage in the circuit at which they become distinct and in order that the response be intelligent it is necessary that the division point be conscious. If the act becomes conscious at a stage subsequent to the division point, the overt response is not intelligent. The act must become conscious at least as early as the division point between the acts to be selected from. Suppose that one is opening a door which opens out instead of in as was expected. In this case it may be necessary to have conscious that part of the act at which it may be particularized as either "in" or "out." The division point becomes conscious as the motor attitude "enter," and this stage of the circuit becomes consciously particularized into the specific overt act "out." *Every intelligent response constitutes the conclusion of an act, in which an earlier incomplete and unparticularized stage was conscious.*

Development or intelligence is indicated by the power to render conscious earlier and earlier stages of the reflex circuit. A dog is undoubtedly capable of being conscious of later but unparticularized stages of the act. Thus the dog has a conscious motor attitude of approaching his master in response to a characteristic whistle, but it is a conscious motor attitude which requires further conscious particularization in running to the right or to the left, and in avoiding intervening obstacles. The motor attitude does not always particularize itself in the same manner. A motor attitude constitutes a late conscious stage of the circuit in rather close proximity to the final particularization in the overt act. Now as the circuit becomes conscious at an earlier stage it marks an advance in intelligence. *In fact, we may define intelligence as the remoteness from the overt act at which the reflex circuit becomes conscious.* The course of the excitation from the stimulus through unconscious and conscious stages

toward its overt completion is a process of delimiting the stimulation.

Habits and reflexes involve the passage of the stimulation in an unconscious manner from the stimulus to the response. *A higher order habit (mental habit) is the unconscious passage of the excitation over one division point, which, however, necessitates further conscious particularization before it completes itself in the overt act.* Thus, the adaptive response to an insulting stimulus may particularize itself in the form of the habitual motor attitude of courtesy or discourtesy. But even when the act has particularized itself in one or the other, it requires still further particularization before reaching its overt completion in the vocal cords or the fist. Now if the higher order habit of courtesy has been firmly established, the excitation will pass *unconsciously* over the first division point and will become conscious as the motor attitude of courtesy. It may, when so far developed, be *consciously* particularized by issuing in the vocal gesture "yes" or "no," or in the inhibition of silence. This form of habitual coordination is properly designated as of higher order, as contrasted with simple habit, because it requires what the simple habit does not require, namely, conscious completion before reaching overt expression. Both involve the unconscious passage over a division point which in former repetitions was conscious, but that of the higher order habit is more remote from the overt act.

In the same manner an instinct is an innate tendency to assume a motor attitude which requires conscious particularization before it becomes an overt response. If the instinctive coordination is so inflexible as to require no conscious selection it is no longer an instinct. It is then either a simple reflex or a chain reflex. *Every instinctive act is voluntary in its transition from the conscious instinctive motor attitude to the final overt act, but it is unconscious in the stages preceding the motor attitude.* The instinctive act is often rational in so far as it has been particularized by conscious selection of the means wherewith to satisfy the instinctive attitude in its craving for an immediate end. Hence there is no sharp line of demarcation between instinctive acts and rational acts except in the origin of their motivation. The instinct is differentiated from the higher order habit only in the origin of the neural coordination. The analogy is similar to that between the simple reflex and the simple habit.

If we consider the reflex circuit as becoming conscious at stages which are successively more and more remote from the overt act we have the crucial mark of intelligence. The intelligent coordination is one in which the conscious division points are relatively remote

from the overt act. If this be true the most intelligent coordination should be one in which the division points become conscious as early in the act as the sensorium.

The act does not become conscious until it strikes a problematic fork in the road. Then it does become conscious. *If the conscious division point is sufficiently remote from the overt stage so as to fail to be directly identifiable with it, this conscious division point is an idea or a concept.* "To have an idea" is concomitant with the rendering conscious of an unfinished act while it is still unfinished. Thus the idea Jackson Park is a conscious incomplete act which may continue to particularize itself in some such immediately detailed overt completion as diving into the lake. This does not imply that the idea is necessarily consciously anticipatory. To be sure, it does functionally anticipate its completion but the anticipation, as such, need not be conscious in the cognitive psychosis.

If the particularization of the act becomes conscious not only before it symbolizes a detailed overt act, but before it is detailed enough to symbolize individual experience, it is a concept. Thus the concept "lamp" is the conscious symbol of an unfinished act. By the law of ideomotor action it tends to particularize itself. Now, intellectual training consists psychologically largely in acquiring the ability to inhibit ideomotor action. Most subjects are unable to retain a concept as such. The symbol immediately flows over into some of its more particularized forms. The transition from the concept to the idea does not involve any crossing of a sharp line of demarcation. The distinction between the concept and the idea is to be found not in the momentary psychosis but rather in the subsequent psychoses.

The concept symbolizes the unfinished act at a stage when it is still impersonal. As soon as it reaches the stage at which it symbolizes the actor's own personal experience it partakes more of what we usually call an idea. Thus the concept "lamp" is quite impersonal in its implication but if it makes the actor think of his own experience with a lamp he has sufficiently particularized the act to anticipate a personally characteristic response and it is no longer a concept in the strict sense of the term. It must not be forgotten that a concept can by definition be particularized in any one of several directions. Otherwise it would never be conscious. Thus my concept "dog" is an attitude of readiness to select a more detailed response from a class of responses. It is an unfinished act which may presently call for the detailed response "mad dog" or "nice dog" as the case may be. *There are, however, no ultimate differentia in the momentary consciousness for the concept. It can only be proved to have been a concept after the act.*

While entertaining such concepts as benevolence, death, satire, speed, cleanliness, *etc.*, the actor is not himself consciously involved. The act is too early in its development to have become personal. It is not detailed enough to precipitate concrete experience without further conscious definition. When the concept has flowed over into the idea, the act has thereby become personal. If the concept "benevolence" defines itself by the memorial reinstatement of seeing a pedestrian place a nickel in a beggar's tin cup, it has become an idea which is symbolic of concrete personal experience even though the actor himself is not mentally reacting to the tin cup.

It goes without saying that some concepts are so far removed from the overt act that they require conscious definition into simpler concepts which in turn define themselves as ideas and responses. Such a concept is that of acceleration which is a derivative from the more immediate concept speed. *Derivative concepts such as acceleration, conduct, organism, thing, never function by being derived but always by being defined into more motorially significant concepts.*

Thus the four above mentioned derivative concepts might define themselves respectively into the simpler concepts speed, tact, quadruped, and eraser. The latter represent stages in the circuit adjacent to the motorium whereas the higher order concepts represent the more loosely defined unfinished acts.

To summarize, the concept and the idea are differentiated by the fact that the concept is the ideomotor antecedent of the idea, and that the transition involves the process of making the concept stage of the circuit sufficiently particularized to be personally concrete.

To guard against possible misunderstanding as to what is here meant by the development of the act it should perhaps be made clear that what is here referred to as early and late stages of the act is not necessarily synonymous with anatomical succession in the spinal cord and cortex. A concept of the very highest order may be neurally quite simple although it has the potentiality of defining itself into any one of a large number of ramifications. Neurally the early and late stages may both be cortical and either may be neurally more complex than the other, but from the standpoint of the history of the act in which the concept functions, it constitutes a stage in the process of rendering overtly adaptable the conscious division points in the momentary psychosis.

Finally, when the act becomes conscious as early as in the sensorium we have the highest type of coordination of which we are capable. It goes without saying that there is a far cry in mental development from selectively reacting to sensations to the inhibition

of the interpretative ideomotor function of perception. This inhibition holds the sensation as such in suspense and it is therefore a difficult intellectual feat. The locomotive engineer who responds selectively to red and green signals probably never stops to have the conscious psychosis "redness." The ideomotor tendency of perception slides over the sensorial division point of redness and renders it unconscious. It becomes conscious as a more or less particularized "red signal" with the appropriate motor attitude. The ability to entertain consciously a sensation quality as such, marks a higher stage of intellectual development than the ability to use concepts and ideas. This is not inconsistent with the generally admitted fact that adults seldom, if ever, have conscious sensations, but we would deny a similar insinuation concerning our ideas. If this notion concerning the cognitive categories is at all adequate it might perhaps be more logical to discuss sensation as the last chapter in our text-books rather than as the conventional first.

So far we have discussed some of the typical stages of the reflex circuit and given to these stages their appropriate names. It appears that the cognitive categories are all of them stages in the circuit. A stage in the circuit is not dynamic and neither are the cognitive categories. If we consider the circuit in action we are concerned not with the momentary psychosis or stage but with the passage of the excitation from one stage to a succeeding stage. The first part of the circuit is always unconscious. It becomes conscious sooner or later unless it be a reflex or a simple habit. *The transition of the act from the unconscious to the conscious phase of the circuit constitutes attention. When the transition from one conscious stage to a subsequent more defined stage of the circuit becomes conscious we have the essence of judgment.* The most rudimentary form of judgment is the consciousness of meaning in which one stage of the circuit vaguely anticipates its particularization toward the overt act. *When the process of defining the act has conscious beginning and end points, the transition from one to the other is a judgment in which the end points of the conscious phase constitute the two terms.* Language often reverses the psychological order of the terms into the order of causal relationship. Thus the judgment "the fire is hot" may psychologically have been derived from the idea "hot" which particularizes itself into "hot-fire," thus causing the appropriate reaction away from the fireplace. *Every judgment can be interpreted as the transition of a conscious stage of the circuit to a more defined conscious stage in the course of the excitation toward its overt completion.*

In the realm of affection we may also utilize the reflex circuit as

an explanatory principle. *When the furtherance and appetition or the hindrance and aversion become conscious in or near the motorium we have primitive feeling psychoses of like and dislike.* Like and dislike are motor attitudes which are generally quite concrete and too particularized to involve any idea of the self. In fact the like and dislike psychoses are conscious stages which assume a preceding unconscious passage of the act over the idea-stage of the circuit. Animals are capable of entertaining conscious likes and dislikes without the consciousness of the self since these psychoses appear as motor attitudes toward concrete objects of the environment. These attitudes are sufficiently developed to precipitate quite immediately into overt responses of appetition and aversion.

When the furtherance-hindrance becomes conscious as early as the idea-stage of the circuit it involves the self and it constitutes in this phase an emotion. The emotion is of course subject to the universal ideomotor tendency to particularize itself in the instinctive response. The emotion with its self-relations is necessarily an unfinished act, but the notion of the self can not possibly be involved in the particularized impulse.

The furtherance-hindrance can not become conscious in the concept-stage of the circuit since furtherance and hindrance are necessarily personal and the concept is impersonal. But just as the concept is an impersonal conscious division point leading to the idea which directly involves the self, or the expected experience of the actor, so the furtherance and hindrance may be consciously symbolized in the concept stage on its way toward the idea-stage, or emotion, at which the concrete particularized experience of the actor is involved. *When the furtherance-hindrance is consciously symbolized in the conceptual stage of the circuit we have the esthetic psychosis.* The ideomotor tendency of the esthetic psychosis leads to the concrete emotion, but if this ideomotor tendency is not inhibited the esthetic psychosis blends into a personal sentimental or emotional psychosis. The customary description of a "lost self" in the esthetic psychosis should be modified so as to indicate a self in the process of being formed. But in order to retain the esthetic psychosis as such, the concrete self must not be allowed the opportunity of being formed. When we speak of the enlarged self in the esthetic psychosis we are concerned with the same type of generalization of the self as is involved in the "enlargement" of particulars into concepts. We have described the universal, not as retrogressively composed of particulars, but we have been considering the universal as a step in the ever present process of defining the particular.

The apparent inconsistency of disagreeable emotional states de-

picted in the agreeable esthetic psychosis is perhaps removed if we think of the esthetic psychosis as simply symbolizing the emotion without forcing the percipient to assume it. The esthetic psychosis is on the same impersonal and unfinished stage of the circuit as the concept. The esthetic experience is a rudimentary form of judgment involving the consciousness of emotional meaning.

This doctrine of the unfinished act, according to which we have been here considering some of the psychological categories may be briefly summarized in the assertion that *every psychosis is a stage in particularizing the excitation on its course toward overt completion.* The higher and lower cognitive functions are differentiated by the fact that the former are the functional unparticularized antecedents of the latter. *Conation and cognition are differentiated in that the conscious stage constitutes a cognitive psychosis whereas the conscious passage from one stage to its more defined subsequent stage constitutes conation.* Hence conative psychoses can not be entertained in the absence of cognition but the reverse is theoretically possible.

It has not, of course, been the intention to disregard the memorial or retrospective *derivation* of any psychosis. The point of particular emphasis is that every psychosis actually *is* an unfinished act in the process of being defined into an overt response.

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RELATIONS BETWEEN RELATIONS.

RECENTLY I picked up a review written in a foreign tongue, and my attention was caught by familiar names. Some one had been laboring through the productions of the American new realists, as to whether relations were "external." And I was set to wondering how much of the stuff we have written, and still write, is worth anybody's trouble on the other side of the world. Most of our debates are so bad that we soon tire of them ourselves; and I suspect most of us are now tired of hearing about "external relations."

Nevertheless I here propose to reopen the question of "externality," though only long enough to discuss what it was all about. There is an interesting analogous case in Greek philosophy. For a more precise statement and confirmation of what I am going to say, I may appeal to the chapter on "The Predicables" in H. W. B. Joseph's *Introduction to Logic;* but as I want the illustration only "to point a moral," I shall leave out some qualifications and provisos